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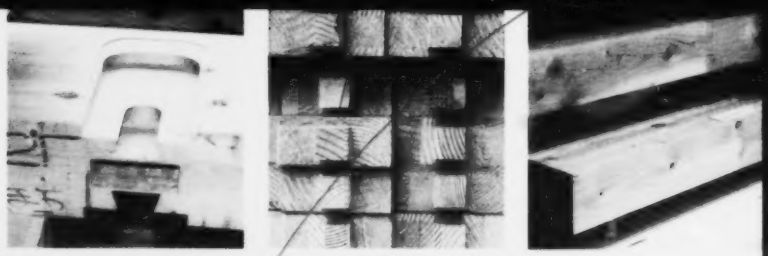

WOOD MARKET TRENDS IN JAPAN

CHRIS GASTON
DAVID COHEN
IVAN EASTIN

2006 Edition

Forintek Canada Corp.

Natural Resources Canada | Ressources naturelles Canada

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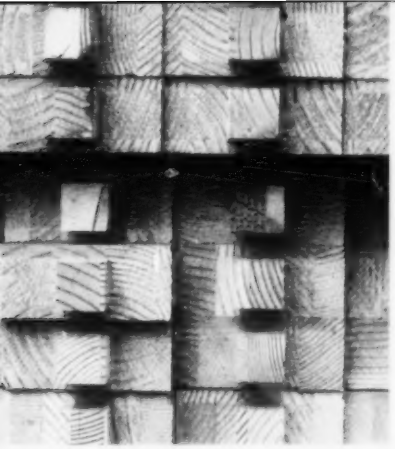


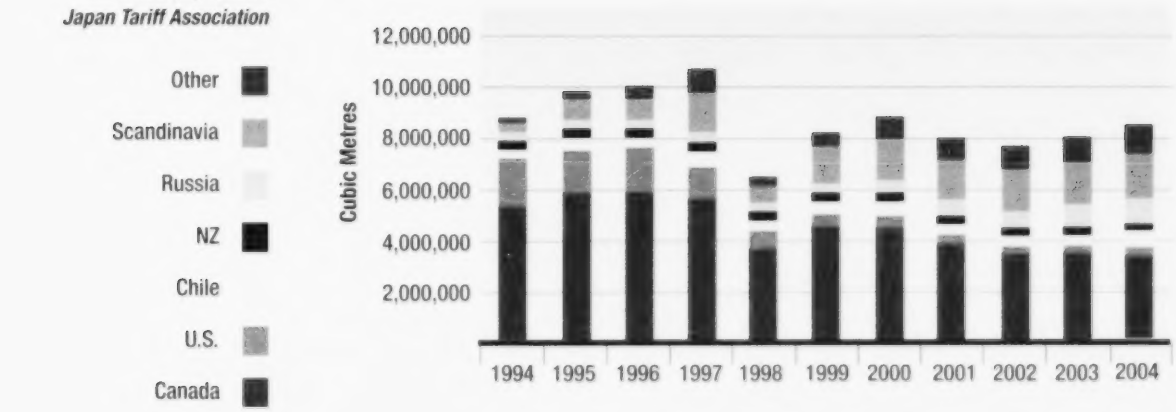
Introduction

"There are... a number of very powerful trends...all of which challenge the competitive advantage that Canada has enjoyed in Japan."

Japan remains the single most important offshore market for the North American wood products industry. North American softwood lumber exports to Japan, for example, have grown from less than 500,000 cubic metres in 1965 to nearly 8,000,000 cubic metres in the peak of 1996 (Figure 1).

Yet many of the competitive advantages that North America has enjoyed as the premier supplier have been challenged, focused around a number of identifiable trends in demand and supply, leading to considerable market share erosion. This publication summarizes these trends and identifies the challenges and opportunities for North American wood product suppliers in Japan.

Figure1
Japanese imports of softwood lumber, by volume
Japan Tariff Association



The identified trends in the use of wood products in Japan are:

Trend 1	Japan remains a major wood importing region
Trend 2	Yen strengthens against N.A. currencies
Trend 3	Increased demand for housing performance and longevity
Trend 4	Western-style housing remains strong
Trend 5	Growth in pre-cut drives shift to kiln-dried lumber
Trend 6	Hybrid construction becomes established
Trend 7	Aging population and increased interest in "healthy house"
Trend 8	Increased diversity in housing styles
Trend 9	Continued growth of demand for engineered wood products
Trend 10	Government regulation in housing increases
Trend 11	Home reform (repair and remodeling) increases dramatically
Trend 12	Japanese become price sensitive
Trend 13	The emergence of power builders

1

Japan remains a major wood importing region

"The combination of declining domestic production and relatively constant import volumes means that self-sufficiency has dropped from 78% in 1991 to 67% in 2004."

Timber self-sufficiency

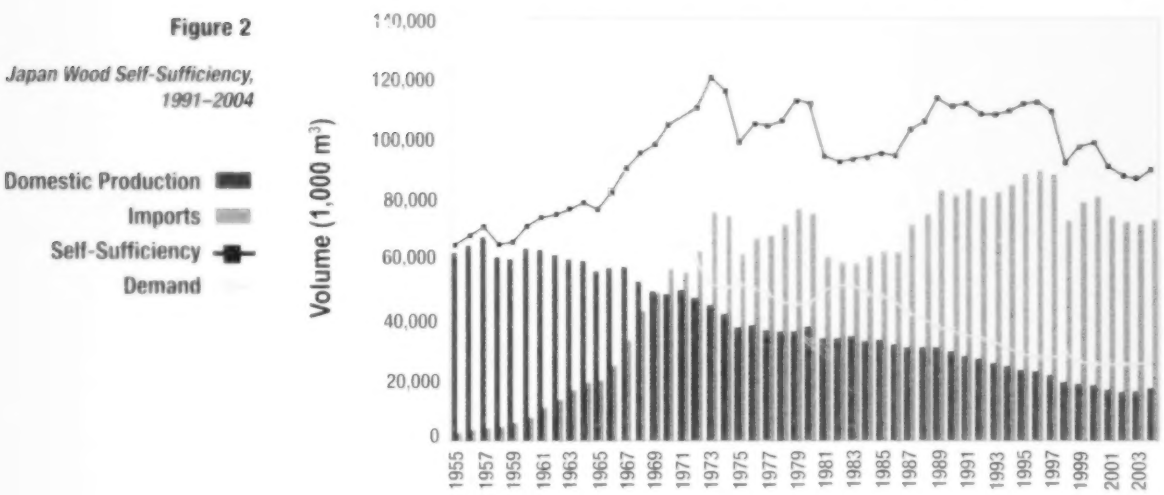
During the post-war era, Japan went from being essentially self-sufficient in meeting its timber demands to relying on imports for more than 80% of its timber requirements (Figure 2). From 1955 to 2004, domestic timber production steadily declined from approximately 65 million m^3 to less than 20 million m^3. Timber imports, on the other hand, have increased tremendously, jumping from 2.5 million m^3 in 1955 to almost 90 million m^3 in 1996 before dropping off to 75 million m^3 during the recent economic recession. Overall, timber demand has generally followed the economy, increasing during period of economic growth (1960 to 1972 and 1985 to 1991) and declining during periods of slow economic performance (1973 to 1975, 1979 to 1983, and 1997 to 2004). While timber demand suffered a sharp decline following the Asian economic crisis, virtually all of the reduced demand was absorbed by timber imports and domestic production volumes remained relatively constant or increased during the period 1998 to 2004.

Lumber self-sufficiency

Japan's domestic lumber production volumes are a sharp contrast to its overall timber self-sufficiency. Whereas over 80% of the timber supply is derived from imports, only about 30% of Japan's softwood lumber demand is provided by lumber imports (Figure 3). Despite Japan's relatively high level of self-sufficiency, the domestic lumber industry has been plagued by overcapacity and declining production levels as smaller, less efficient sawmills have closed down. Over the past decade, domestic lumber production has declined from 28 million m^3 to 14 million m^3, while

Figure 2

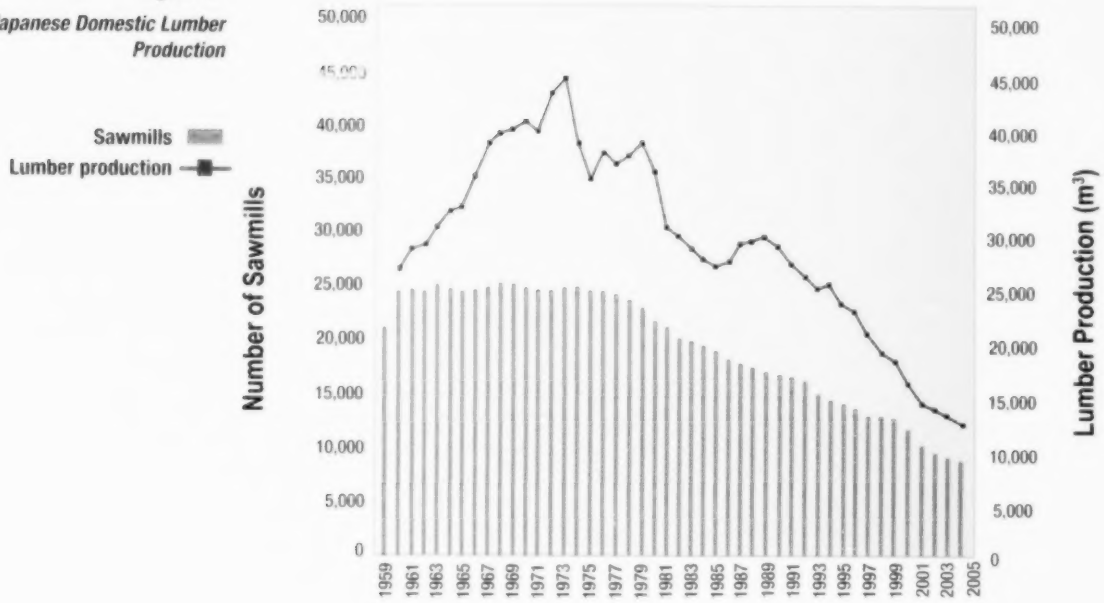
Japan Wood Self-Sufficiency, 1991–2004



lumber imports have remained fairly constant at approximately 9 million m^3. The combination of declining domestic production and relatively constant import volumes means that self-sufficiency has dropped from 78% in 1991 to 67% in 2004. The lumber industry was particularly hard hit by the Asian economic crisis, with the number of sawmills declining from 14,028 in 1996 to 12,810 in 1998. These sawmill closures, partially driven by a decline in housing starts, resulted in the large decline in production capacity.

Figure 3

Japanese Domestic Lumber Production



Domestic softwood lumber industry

The lumber industry in Japan has traditionally been characterized by small-scale sawmills operating within a very localized, rural market. These mills typically process locally produced logs into lumber for use by local homebuilders. Most of their lumber is sold to local wholesalers who perform many of the marketing functions for the sawmill. As a result, many small sawmills have a poor understanding of the markets and demand for their products. Increasing competition from imported lumber has contributed to the problems confronting local sawmills, as has the closure of a large number of small rural sawmills over the past twenty years. These small rural sawmills were often family run and the continued movement of population from the rural areas to the big cities has forced many of these small sawmills to close when the owner retires.

Large sawmills located in the industrial zones of large cities have replaced small rural sawmills. These larger sawmills often process a combination of imported and domestic logs, although some of the largest process imported logs exclusively. These mills are larger, more efficient, with more modern equipment and better access to capital than the small local mills. However, these mills are also confronted with the rising cost of production that has plagued the small rural mills and they often find themselves at a competitive disadvantage with foreign lumber producers.

"The combination of high raw material costs and high costs of production made the Japanese forestry and sawmill industries more susceptible to foreign competition."

The combination of high raw material cost and high costs of production made the Japanese forestry and sawmill industries more susceptible to foreign competition. The impact of changes in the Building Standards Law and the adoption of the Housing Quality Assurance Act on material specification within the home building industry further disadvantaged domestic industries. For example, the shift from green to kiln-dried lumber caught the Japanese sawmill industry off-guard and they have been slow to respond. Four years after these regulatory changes, the total domestic lumber production that is kiln-dried is just 15.5%.

Tokyo Lumber Terminal

TREND

2

Yen strengthens against N.A. currencies

Perhaps one of the most striking trends has been the ever-increasing value of the Japanese yen against western currencies—shown for the U.S. and Canada in Figure 4. From 1970 to present day, the yen has appreciated so much that in actual fact, Japanese importers are paying less in real (inflation adjusted) yen for virtually any wood product today than they were over three decades ago! This is illustrated in Figure 5, showing the value of the Japanese imports of Canadian softwood lumber in aggregate from 1965 to 2004, in thousands of yen per cubic metre. This is a fact that is often overlooked because of the strong gains in the yen relative to the dollar. From the Canadian exporters' point of view, prices stayed stable over time, or even increased for selected items.

Since 1995, with the beginning of the so-called "Asian Flu", there has been much press and speculation about the drop in the purchasing power of the yen, and growing worries about the competitiveness of North American wood products in Japan. While Figure 4 illustrates that the stabilization of the yen relative to the U.S. and Canadian dollars seems rather inconsequential to the longer-term trend established since 1970, the drops in overall wood product imports after 1998 punctuate the concern. What would happen if the exchange rate for the Japanese yen did drop to the late 1970s level?

It is interesting to note that since the introduction of the Euro (as opposed to the relatively weaker currencies of northern Europe relative to the U.S. dollar in the mid-1990s) the exchange rate advantage has not favored European suppliers to Japan. Yet their market share gain against Canada and the U.S. has persisted.

PRODUCT OPPORTUNITIES

- Because of the continuing decline of the value of the U.S. dollar relative to the Japanese yen, the Canadian dollar and the Euro, an opportunity exists for the U.S. to regain market share in value-added wood products
- Canadian products will have to increase their perceived value to the Japanese to compensate for strengthening currency relative to the yen, the Euro and the U.S. dollar

Figure 4

Japanese Yen Against Western Currencies

Figure 5

Inflation Adjusted Softwood Lumber Imports by Japan from Canada

Tokyo Stock Exchange

Photo credit: Adobe Stock Photos

TREND

3 Increased demand for housing performance and longevity

Perhaps the biggest structural change in the Japanese demand for wooden building materials is related to recent earthquakes in Japan. Historically, one of the main reasons for the price premiums for softwood construction lumber in Japan had been related to aesthetic qualities, such as clear grain, tight growth rings and consistent color. The "performance" of the house structure was almost secondary. In fact, during the post-war era, the average life expectancy of the Japanese single-family home has been only 26 years! This is changing dramatically, with research in Japan showing that the life expectancy of newly built homes has increased to 56 years (Nikkan Mokuzai Shimbun Wednesday, May 14, 2003).

Whether it was the shock of the Kobe earthquake alone, or a combination of this disaster with other factors such as the disquieting effect of the "Asian Flu" on consumer confidence, the market has moved toward increased performance attributes of building systems, wood structural members and engineered wood products (primarily glulam) as Figure 6 illustrates.

Increasing emphasis on actual performance is critical, including:

- consumer pressure for more regulations and for companies to back up claims;
- introduction of a process to resolve disputes between home buyers and home builders;
- over 10% of new construction now rated under the voluntary housing performance characteristic system.

Note than in all three product categories, the attributes that are ranked highest are those related to performance, while those that are ranked lowest included the source of the wood or the country of manufacture.

The trend toward housing performance has directly or indirectly affected almost every other trend to be discussed in the balance of this report.

Building Systems		Wood Structural Members		Engineered Structural Members	
	Score		Score		Score
Durability	268	Strength	316	Strength	304
Strength	265	Price	247	Durability	261
Construction method	177	Utility (falldown)	224	Price stability	228
Design	162	Species	135	Connections	139
Structural material	122	Colour	119	Security of supply	108
Green vs. dry	103	Treatability	110	Species	88
Detached	81	Finish	38	Supply reliability	71
Size of house	37	Durability	17	Treatability	45
Size of structural members	26	Weight	17	Source of material	9
Country of origin	10	Sizes	16	Country of manufacture	7
		Security of supply	15		
		Source of supply	12		

Figure 6

Attributes Demanded for Wood Building Products by Consumers (Cohen and Gaston, 2000)

"Consumers demand longer lasting housing."

Naturally durable structural members (Yellow Cedar)

PRODUCT OPPORTUNITIES

- Performance labeling
- Promotional efforts to equate platform-frame & hybrid systems to performance
- Promoting the performance properties of engineered wood products
- Promoting the performance properties of naturally durable species
- Supplying low-maintenance products; promoting the longevity of products

TREND

4

Western-style platform-frame housing remains strong

"Japanese are more likely to specify N.A. secondary wood products for platform-frame homes, including doors and windows (size issue) and interior finish and furniture (style issue)."

One of the main reasons that global suppliers of softwood lumber look to Japan as a portion of their export mix is that it is the only country in the world outside of North America that builds a significant number of wooden single-family detached homes. While this construction is dominated by post & beam architecture (Figure 7), the number of North American platform-frame (2x4) housing starts (and the market share) continues to grow (Figure 8). Due in large part to the successful efforts of both the Canadian and U.S. forest products industries, and enhanced by the performance of 2x4 houses in the Kobe earthquake, demand has remained strong for dimension softwood lumber and structural panels. A proprietary "J-grade" evolved, which combines the aesthetic attributes and the structural performance of softwood lumber. This grade provides a considerable price premium over standard North American construction grades, giving suppliers another opportunity to increase the value of their exports.

PRODUCT OPPORTUNITIES

- Continued demand for "J-grade" construction lumber (albeit declining—see Trend 12) and wood-based structural panels
- Japanese are more likely to specify N.A. secondary wood products for platform-frame homes, including doors and windows (size issue) and interior finish and furniture (style issue)

Figure 7

Japan Total Housing Starts, Wood and Non-Wood

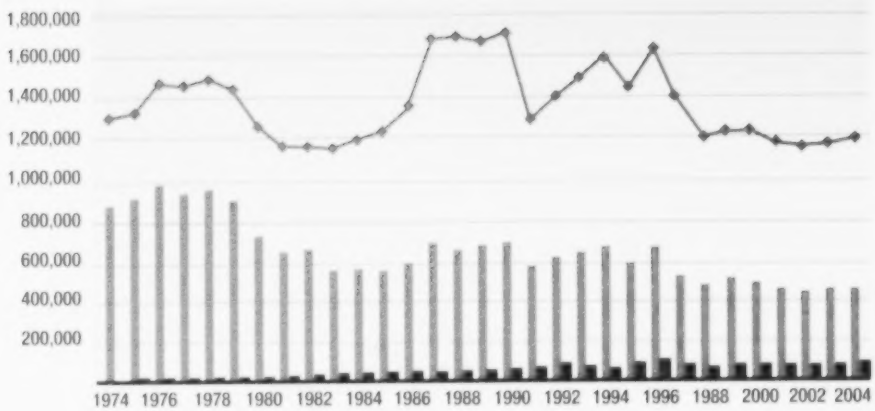
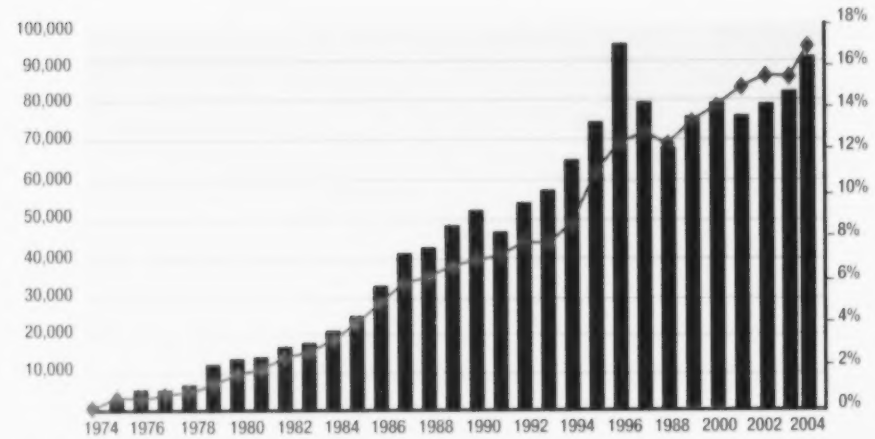
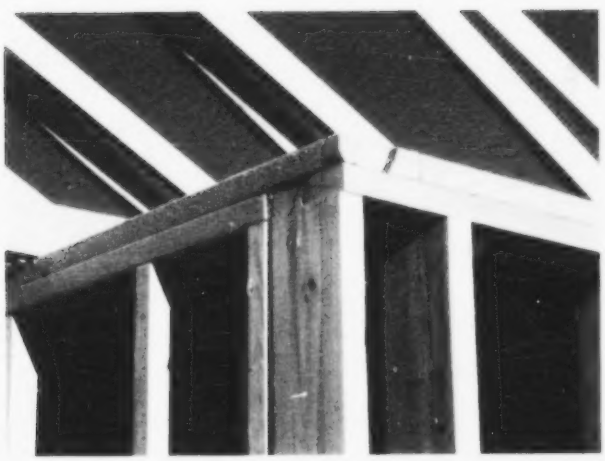


Figure 8

Japan Platform-Frame Housing Starts





TREND 5

Growth in pre-cut drives shift to kiln-dried lumber

"Japan's drying capacity is below 15% of demand nationwide, suggesting a continued need to import dry lumber".

Japan Lumber Journal

Traditional Japanese post & beam home construction has traditionally used green lumber components, utilizing joinery that was hand chiseled at the building site by master carpenters. Due to a number of trends noted in this report, there has been a strong shify toward automating the machining of the joints of structural components in a factory environment. The most significant impact of this trend has been a change from the use of green lumber to kiln-dried lumber within the pre-cut industry. The reason for this is that the machined joints of the structural components tend to shrink if they are produced from green lumber, resulting in a poor fit when the home is constructed.

According to a 2002 survey reported in the Japan Lumber Journal (March 2005), the amount of green lumber utilized in vertical members in post & beam house construction was 30%, with 30% kiln-dried lumber and 40% laminated lumber (the percentages for horizontal members were 40, 20 and 20, respectively). Green lumber is primarily used for sill plates (dodai) and in traditional post & beam houses that do not utilize pre-cut components.

Japan's Housing Quality Assurance Law has reinforced the demand for pre-cut, kiln-dried components by requiring that home builders provide the home buyer with a 10-year warranty on the structural components of the house.

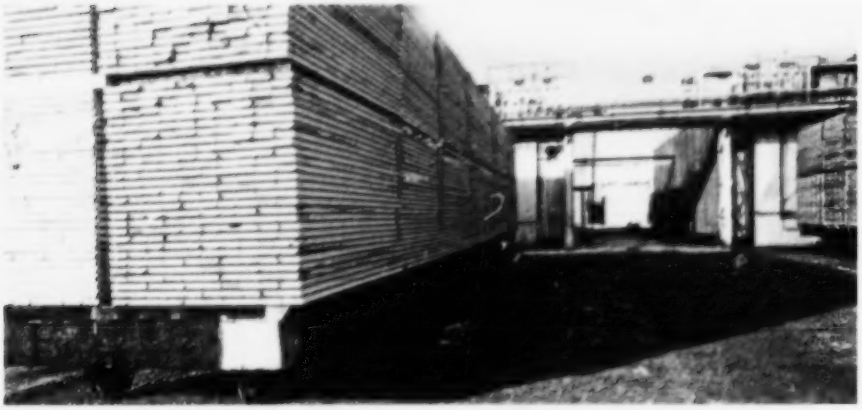
Kilns in Chugoku, Japan

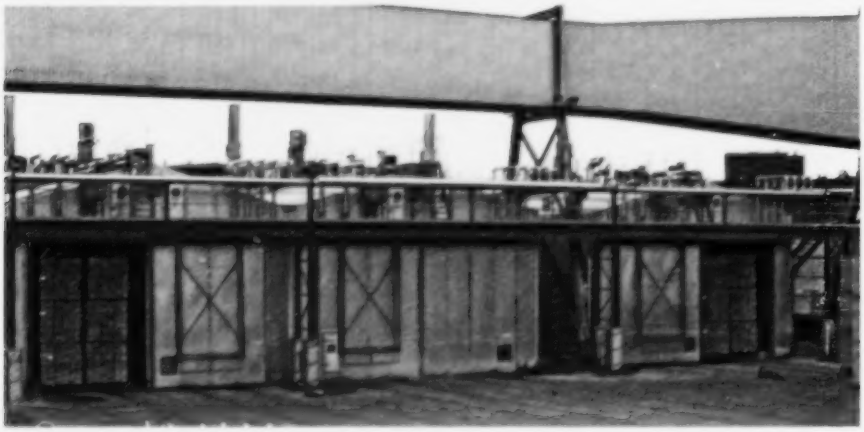
"The number of pre-cut plants (in Japan) increased from 181 in 1986 to 890 in 1998 (the peak to 2005). The number of housing units supplied has grown even more rapidly, from 23,000 in 1986 to over 320,000 in 2005 (representing 75% of wood-based housing starts)".

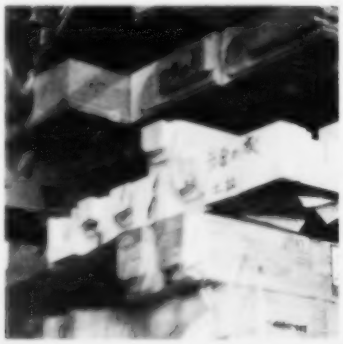
Japan Lumber Journal, 2005

PRODUCT OPPORTUNITIES

- Kiln-dried dimension lumber and lamstock
- Kiln-dried heavy timbers
- Prefabricated components / systems







Yellow cedar dodai and Douglas-fir hirakaku ready for loading at a pre-cut plant

TREND

6 Hybrid construction becomes established

The traditional post & beam home continued to evolve during the twentieth century, but over the past two decades this evolution has turned into a near revolution. As a result of most of the trends described in this report, traditions are being challenged—both in terms of style and construction techniques.

Traditional post & beam construction historically made exclusive use of joinery to connect the structural components, as opposed to nails and metal connectors. As a result of price pressures, a lack of master carpenters, and a demand for improved housing performance (a result of the Kobe earthquake), pre-cut components and engineered wood products came into their own. The next step was the emergence of hybrid construction techniques.

The hybrid system essentially merges the best of post & beam and platform-frame construction techniques. There are many forms of hybrid construction, and all of the lines between construction techniques are becoming very fuzzy.

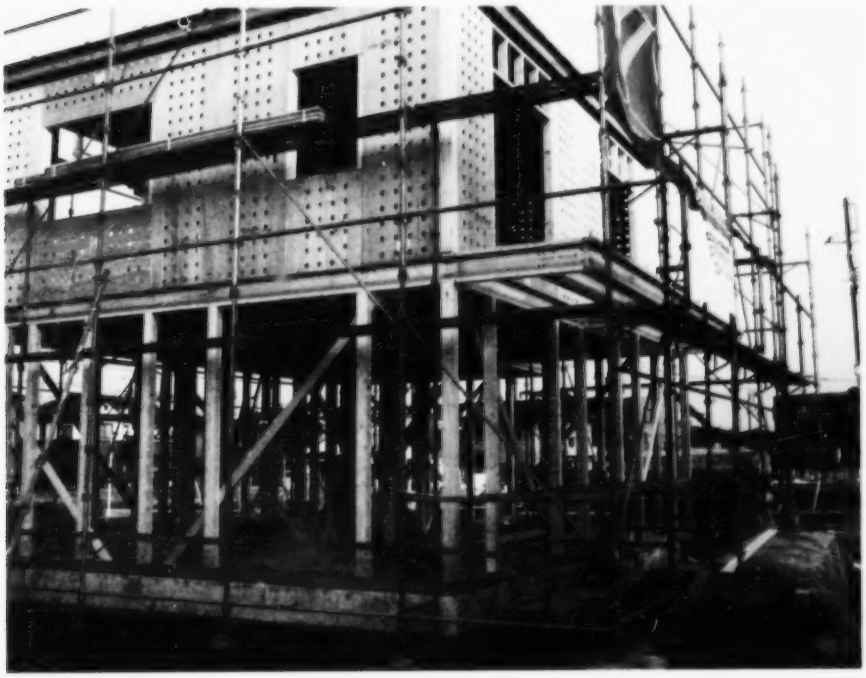
Examples include:

- Adding plywood or OSB sheathing to post & beam structures for shear walls to offer lateral load resistance (traditional post & beam structures usually make use of cross-bracing, but not sheathing).
- Using dimension lumber for interior framing. As post & beam homes were not traditionally designed to last more than 25 years, this was not an issue in the past. Today, however, more use is being made of interior non-load bearing walls for ease of changing interior space with generation and style changes, rather than tearing the house down and starting anew.
- Use of metal connectors and hanging braces as a complement to, or even a replacement for, traditional joinery. This is by far the most radical departure from traditional post & beam construction.
- The use of panelized construction components, including simple wall framing and insulation.

Another form of hybrid construction that is expected to increase in Japan is hybrid buildings that span occupancy types (such as mixing commercial space with residential space) and materials (such as using reinforced concrete for the foundation and first floor and wood-frame construction for subsequent floors). In 2005 the first hybrid

building (built in Kanagawa City) was completed with the first floor built from reinforced concrete and the second through fifth floors utilizing wood-frame construction technology. Connective posts were fabricated using plywood and veneer wrapped steel posts that were certified as one-hour fire resistant.

Code allowance exists for mixed material and hybrid structures, with first floor steel reinforced cement and up to four additional floors with wood platform-frame.



PRODUCT OPPORTUNITIES

Potential for:

- N. A. structural plywood and oriented strandboard
- Dimension lumber for hybrid post & beam homes
- Kiln-dried N. A. Douglas-fir heavy timbers
- Wall and floor systems, including pre-fabricated inserts for post & beam homes, both for new starts and for retro-fitting
- Highly engineered and innovative panelized housing, including recreational

TREND

7

Aging population and increased interest in "healthy house"

Changes in Japan's population have had, and will continue to have, a major impact on housing demand in Japan, both in terms of numbers and styles.

Rapidly aging population

The elderly in Japan are becoming an increasing proportion of the overall population, with those aged 70 or older expected to account for over 15% of the total population by 2020 (Figure 9 and Figure 10). This is due to the much shorter and more intense baby boom following World War II (relative to N.A. and Europe), the declining birth rate in recent years and little immigration. In this older demographic group women will outnumber men by a 2:1 ratio. It will strain government social programs (health, housing and pension) and impact housing in many ways including:

- continued increase in the construction of small units for elderly couples and single females as well as larger houses for multi-generation housing (3 generations);
- first-time house buyers in their 30s often live with either the wife's or husband's parents prior to their purchase of a "built-for-sale" house which includes the land;
- a focus on aging in place (location and on building site) and active aging (engaged and healthy seniors) will continue.

Population trends

Population growth in Japan is stagnating and actually declined in 2005. This is due to fewer marriages at an older age, very low birth rates and a cultural reluctance to allow immigration. This declining population, combined with the higher proportion of elderly, is a key driver of much change in Japan. Impacts include:

- fewer and fewer working people will be available to support the growing aged class which will lead to significant economic impacts, such as people working to an older age and housing starts to fall below one million per year by 2010 (Figure11);
- the end of the population shift from rural to urban housing areas (once a driver of new housing starts);
- larger detached single-family houses (both in total and with more m^2 per person) to accommodate more generations and increased privacy as well as smaller apartments to accommodate elderly couples and singles (see Trend on increased housing diversity).

Photo credit: Kenneth Hamm, PHOTO JAPAN, Washington, U.S.A.

Figure 9
Japanese Population Pyramid 2000 (total pop. 127 million)

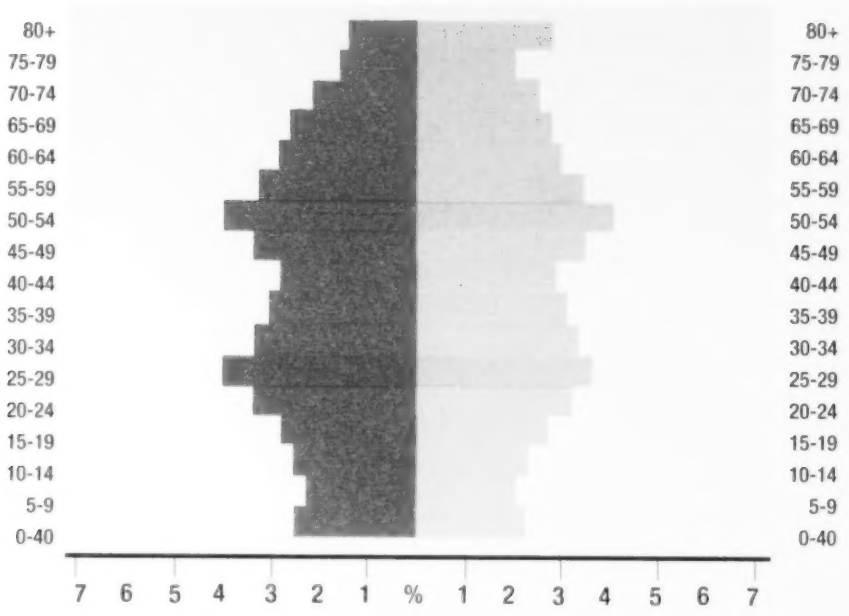
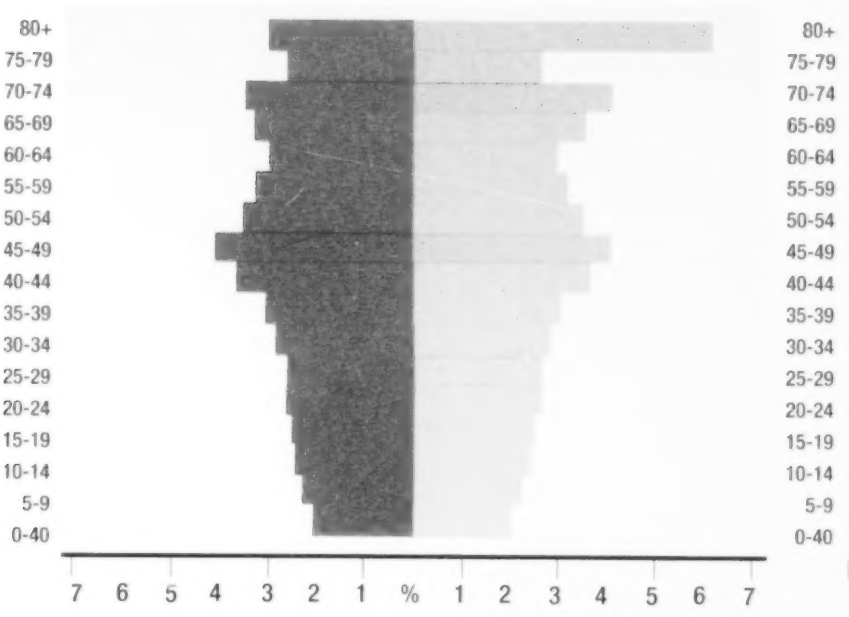


Figure 10
Japanese Population Pyramid 2020 (total pop. 126 million)



Healthy house trends

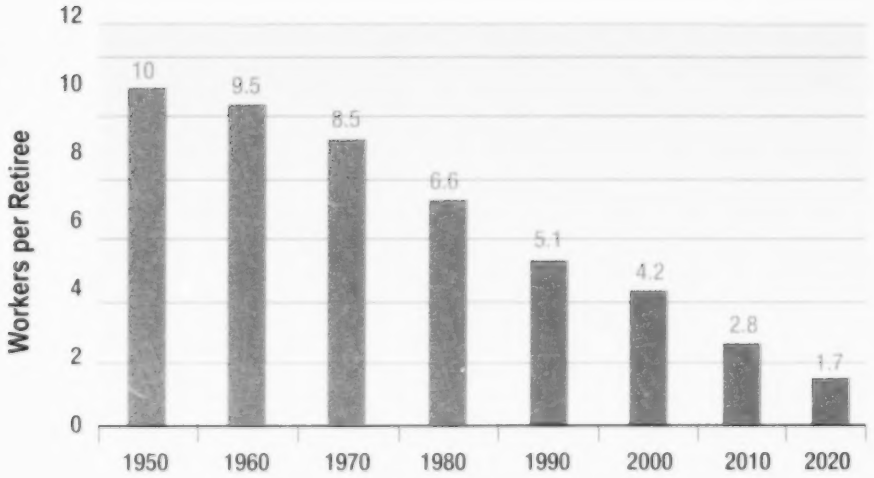
One of the important trends in housing in Japan, fuelled by demographics, is the growing demand for "healthy housing". The growing elderly population is spending more and more time in their houses and is demanding a healthier home environment with a focus on indoor air quality. This concern led to new regulations on July 1, 2003, restricting the emission of volatile chemical substances from wood products (including formaldehyde) and the list of restricted substances is expected to grow. The public is interested in real improvements and not just PR work as shown by recent court cases against builders for falsely advertising healthy housing. This concern will impact material selection:

- sales of building materials and products perceived to lead to poor indoor air quality declining, with sales of "healthy" products increasing;
- declining sales of carpet and composite wood floors and increasing sales of solid wood and laminate flooring;
- increased use of solid wood moulding and finishing materials in new houses replacing plastic, vinyl and composites.

The definition of healthy housing will expand over the next decade to include mould and other yet to be determined health issues related to the home and may include:

- thermal comfort, sound and light, psychological well being, and other health related issues (intense focus on asbestos now);
- Japanese are fascinated by MCS (multiple chemical sensitivity) and houses will need to be places for health restoration;
- as the population ages, quality of life will be blended with healthy housing, with the new emphasis shifting towards holistic housing.

Figure 11
Workers Available to Support Each Person 65 Years of Age and Over



PRODUCT OPPORTUNITIES

- Low emission panels and engineered wood products
- Solid and laminate flooring, ready to assemble
- Naturally durable species
- Accessibility related building products (such as wood hand rails)
- Need for maintenance-free finishing materials and products
- Products with the "look" of tradition but the performance of modern materials (e.g., EWP overlaid with veneer)

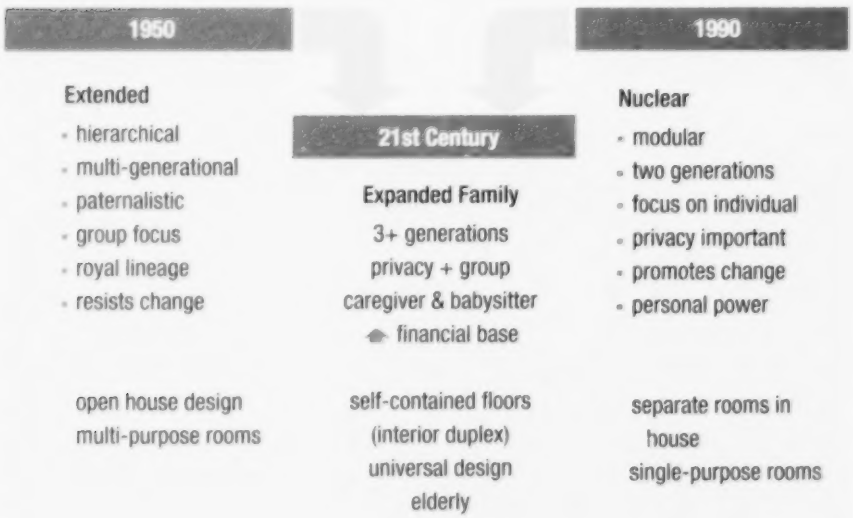
TREND

8 Increased diversity in housing styles

In pre-war Japan, it was common for grandparents, parents and children to all live under one roof (extended family). One result of this practice was that the number of persons per household was five or more for over 50 years. However, after the war, the nuclear family (consisting of one set of parents and their children) was promoted as official government policy. The result of this policy was that the average number of people per household declined continuously to less than 2.75 by 2002. This decline in household size, combined with a growing population, contributed to Japan's post-war construction boom.

During the past 15 years there has been a shift to a modified extended family—the expanded family—where three generations once again live under the same roof but the elderly retain independence. The house is more like an internal duplex than shared living space. In 2002, 4.6 million households had three generations living in them, representing over 10% of all occupied houses in Japan. This has led to an increase in the demand for larger, three-storey houses. This is one example of how the demographic changes discussed previously have contributed to the demand for a new mix of housing styles.

Figure 12
Japan's Evolving Family Structure



This mix includes a demand for:

- traditional and modern post & beam structures most familiar to the elderly;
- larger (often three-storey) homes suitable for independent space for multi-generations (expanded family);
- smaller living spaces (high-end apartments and condominiums) for elderly singles (mostly female) and couples;
- increased demand for entry level, affordable quality "built-for-sale" homes targeted towards young married couples who do not live with their parents. The latter is particularly appealing to the "echo-baby boomers", who are the target market for the newly emerging "power builders" (see Trend 13). These houses tend to be built for sale for those buyers who do not already own land.

PRODUCT OPPORTUNITIES

- Finished building products to make life easier for the elderly, including hand rails, non-slip solid wood flooring, and security devices (e.g., lockable wood shutters)
- Maintenance-free finish
- High-end renovation materials such as cabinets, shelving and flooring that can be transported in small apartment and condominium elevators and easily installed

TREND

9

Continued growth of demand for engineered wood products

Along with the move toward pre-cut post & beam wood components, Japan continues to increase its use of laminated lumber for both vertical and horizontal structural components. In fact, while market research has historically shown an overall preference for kiln-dried solid wood, engineered wood products are now often preferred. There has also been growth in the use of laminated lumber in non-structural uses.

This trend, combined with the movement away from green lumber, has had profound implications for N. A. coastal producers of hem-fir lumber for the Japan post & beam market. While solid sawn green hem-fir traditionally held a dominant position in vertical post applications, this has been dramatically eroded in favor of glulam posts. Initially, the Japanese imported the glulam, partially from the U.S., Scandinavia and other parts of Western Europe for structural purposes, and from the South Seas for non-structural. Over time, Japan developed its own glulam production capacity, and the demand gradually shifted to the import of lamstock, again largely from Scandinavia and other parts of Western Europe (most notably Austria and Germany). Japanese domestic species are not typically used for glulam, with domestic species accounting for less than 10% of the raw material mix.

Figure 13
Japan Imports of Laminated Lumber by Type

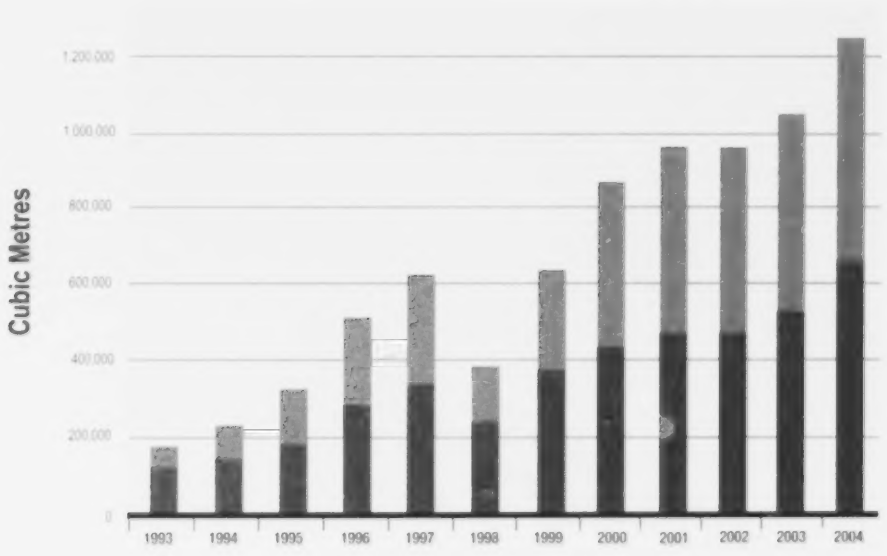


Figure 14
Japan Imports of Laminated Lumber by Source

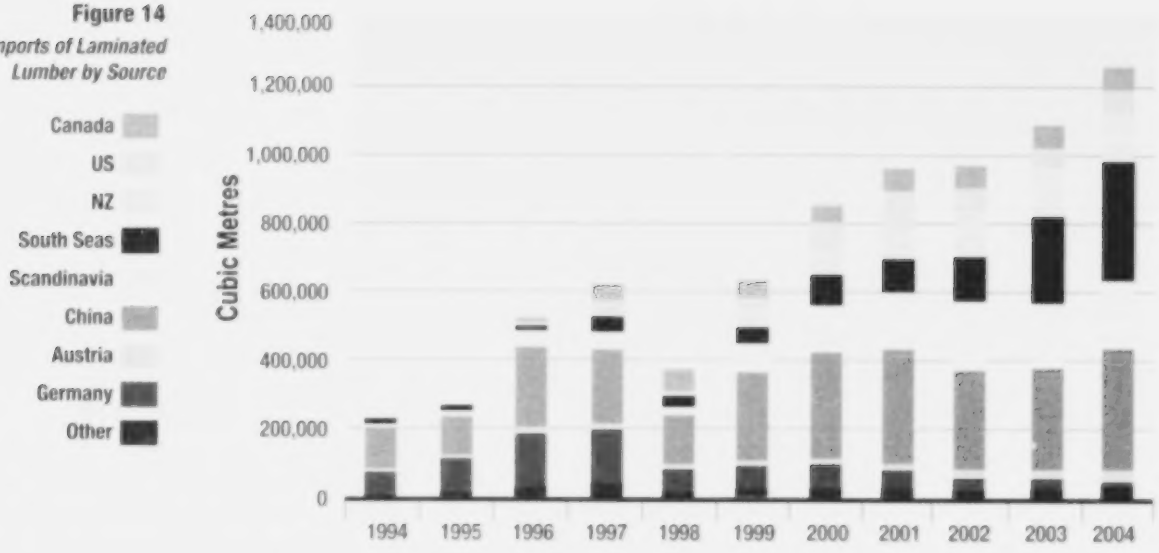
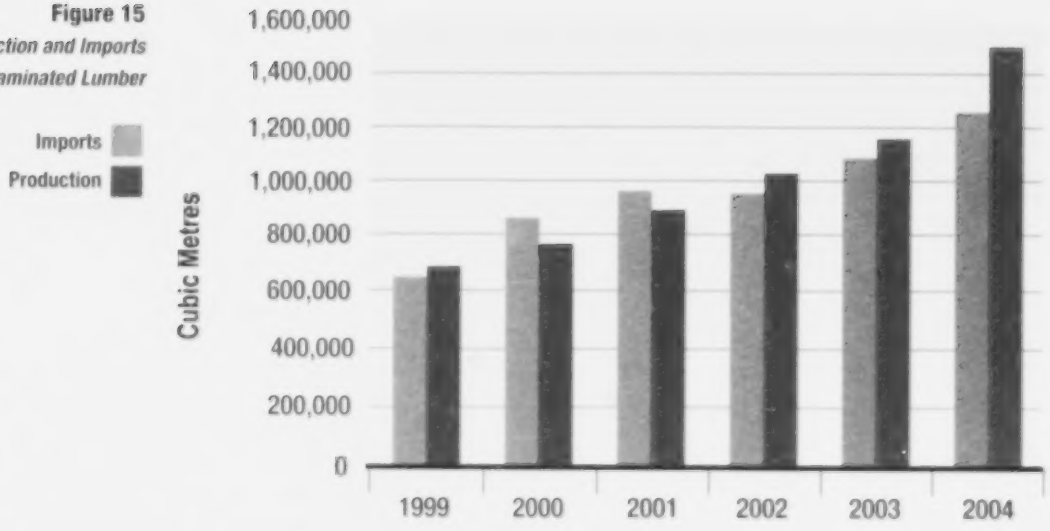


Figure 15
Japan Production and Imports of Laminated Lumber



PRODUCT OPPORTUNITIES

- Kiln-dried lamstock, including treated and naturally durable species
- Glulam, including treated and naturally durable species
- Oriented strand lumber
- Wood I-joists
- Laminated veneer lumber for door and window headers

TREND

10

Government regulation in housing increases

"Regulations that initially applied to only platform-frame construction now extend to post & beam".

Starting with the new Building Standards Law and the associated Housing Quality Assurance Law of 2000, the government is becoming more involved in the regulation of housing. Regulations that initially applied only to platform-frame construction now extend to post & beam. Most of these regulations, including the so-called performance indicators, have been designed to improve housing quality and protect homeowners. Interestingly, this has begun to encourage homebuilders to market their homes on the basis of these indicators, and to begin to provide extended warranties for up to 30 years, subject to inspections and repair and renovations done by contract.

Table 1
Nine Performance Indicators, HQAL, 2000

Indicator	Explanation
· structural stability	· earthquake-proof, loading, foundation
· fire safety	· fire spread time, heat sensors, escapes, etc.
· durability	· decay and deterioration
· ease of maintenance	· ratio of common pipes to common pipe
· energy efficiency	· insulation, window types, etc.
· air quality	· ventilation and formaldehyde
· light environment	· ratio of exterior openings to wall area
· acoustics	· insulation for noise, transparency loss, etc.
· barrier free design	· convenience for elderly and physically impaired

Regulations have recently focused on indoor air quality, particularly regarding formaldehyde emission tolerances. More recently, government has proposed regulations related to green space requirements, with the Ministry of Land, Infrastructure and Transport (MLIT) proposing legislation to ensure that green space is provided (including roof-top gardens), totaling 25% of the total building lot size.

There have also been an increasing number of regulations changing requirements in building construction and renovation practices to make homes more suitable for the elderly. The following Table lists some of the more relevant regulations. These regulations often mandate a standard and provide reference to more rigorous optional standards. It is expected that there will be an increasing number of regulations designed to make it easier for the elderly to age in place, thus reducing the need for expensive (and currently unavailable) specialty senior housing.

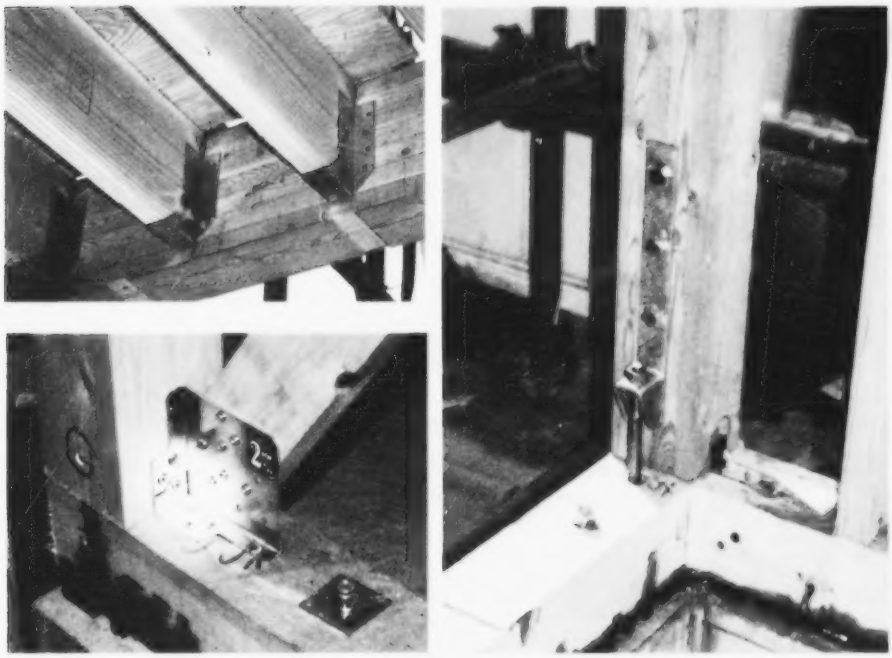
Table 2

Regulations to Improve Accessibility in Built Environment in Japan

1994	Building Accessibility Improvement Law
2000	Housing Quality Assurance Law
	Transportation Accessibility Improvement Law
2001	Law Improving Residential for the Elderly
2003	Revision of Building Accessibility Improvement Law

PRODUCT OPPORTUNITIES

- Structural products that offer performance specifications and/or guarantees
- Products certified with low-formaldehyde emissions (structural and non-structural)
- Solid wood flooring
- Increased demand for wood products in repair and renovation projects



Use of metal connectors and earthquake tie-downs increases performance of traditional Japanese joinery

TREND

11

Home reform (repair and remodeling) increases dramatically

Many of the houses built in Japan prior to 1980 were poor quality with an average life span of 26 years. As a result, most Japanese homeowners typically demolish these older homes and replace them with new homes. Improvements in the quality of housing construction over the past twenty years mean that more and more Japanese homeowners are willing to repair and remodel (a process referred to in Japan as reform) their homes rather than demolish and replace them. Housing demographic data suggests that there may be as many as 15 million homes built since 1980 that are suitable for reform projects (Figure 17). Consumer expenditures within the reform market should reach ¥8.8 trillion in 2005 and are expected to increase to ¥10.6 trillion by 2015 (Figure 16).

A 2004 CINTRAFOR survey of reform contractors in Japan showed the vast majority of reform projects are done in single-family homes (75%) and mansions/condominiums (20%). The survey results indicated that the primary types of reform projects were kitchen (22%), bathroom (19%), entire home remodels (16%) and room additions (13%). The average cost of these projects is noted below in Table 3. Approximately one-third of the flooring, doors, windows and moulding products used in reform projects were imported, a clear indication that these contractors are willing to use imported products (Table 4). Reform contractors rated quality, ready availability, and translated product/technical information as the most important attributes in influencing their decision to purchase a specific building material.

Table 3
Breakdown of Reform Project Types Performed by End-Use

Project Type	Mean percentage	Average Cost (000s yen)
Kitchen	21.9	1,262
Bath	19.5	1,170
Addition	12.6	2,526
Deck	5.4	474
Structural	1.6	1,104
Thermal/Energy Efficiency	2.3	434
Seismic	2.8	1,049
Exterior	12.6	1,532
Senior Friendly	5.2	322
Total House	15.9	6,296

Source : CINTRAFOR and Japan Reform Newspaper, 2004

The size of the reform market, combined with the willingness of reform contractors to use imported wooden building materials, suggests that this could be an important market for North American value-added wood products. In addition, over the past decade Japanese homeowners have increasingly embraced the concept of outdoor living. This has led to an increased demand for treated and naturally durable lumber for decks and other outdoor living structures.

Table 4
Breakdown of Reform Project Types Performed by Product Type

Product Type	Imported
Hardwood Flooring	34.6
Softwood Flooring	36.2
Interior Doors	26.4
Exterior Doors	32.2
Windows	44.5
Kitchen Cabinets	17.3
Bathroom Cabinets	10.8
Mouldings	31.8

Source : CINTRAFOR and Japan Reform Newspaper, 2004

Figure 16
Annual Expense

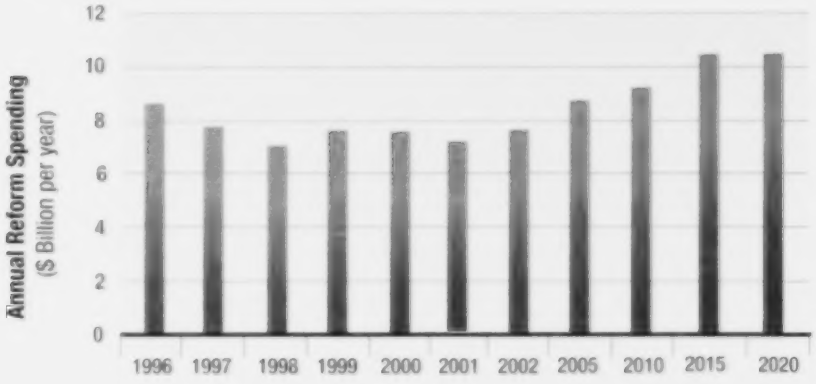
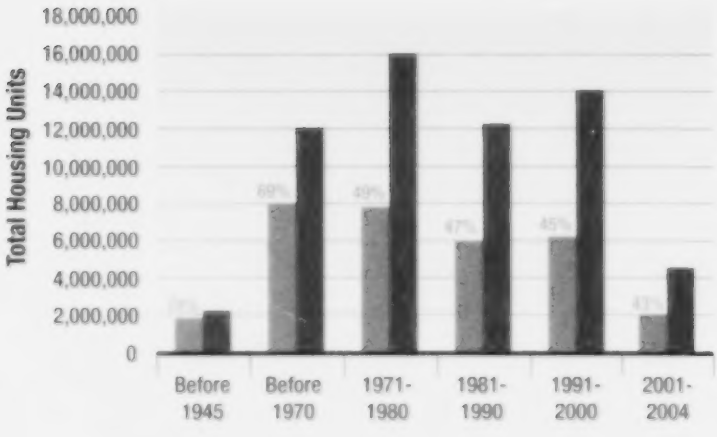


Figure 17
Age Distribution of Housing Units in Japan



PRODUCT OPPORTUNITIES

- Prefinished hardwood flooring (both solid and engineered)
- Prefinished softwood flooring (both solid and engineered)
- Exterior wooden doors
- Wood windows
- Wood mouldings
- Wood cabinets
- Exterior products made from treated lumber and naturally durable species

Figure 18
Example Reform Project in Japan: BEFORE

Figure 19
Example Reform Project in Japan: AFTER

TREND

12 Japan becomes price sensitive

"Japanese consumers and builders have learned to postpone purchases in expectation of lower prices in the future".

The increased price sensitivity of consumers and builders is readily apparent in Japan today. This trend can be seen in the expanding demand for glue laminated posts and beams relative to solid sawn, kiln-dried lumber, the growing use of edge-glued panels in finish applications over solid wood, and the growing outsourcing of components and products to China. Even in structural lumber purchases for North American-style 2x4 construction, there is a noted trend away from the purchase of higher priced J-grade lumber to less expensive, lower quality lumber grades.

There are a number of factors that contribute to this trend. The most obvious is the economic recession in Japan that lasted from 1999 to 2004. Over those years Japan was mired in a deflationary environment and Japanese consumers and builders learned to postpone purchases in expectation of lower prices in the future (Figure 20). Even more important, land prices have been declining from the astronomical levels they achieved prior to the bursting of the bubble economy in the early 1990s (Figure 21). Since the vast majority of homeowners' equity is in their land (as opposed to their home), homeowners have lost a significant portion of this equity and, as a result, household wealth. The combination of an under-performing economy, an unprecedented period of deflation and declining land values has caused many home builders and consumers to alter their purchasing behavior and become more price sensitive. As a result, Japanese consumers and builders are much more value conscious today than in the past when they were often willing to pay a substantial premium for high quality products.

PRODUCT OPPORTUNITIES/THREATS

Structural

- Increased demand for engineered wood products

Non-structural

- Increased outsourcing of components/products to lower cost regions (including joint-ventures)
- Increased use of edge-glued panels/veneers in secondary products
- Increased need to add "value" features to maintain price premiums

Figure 20
Japan Consumer Price Index
(percent change)

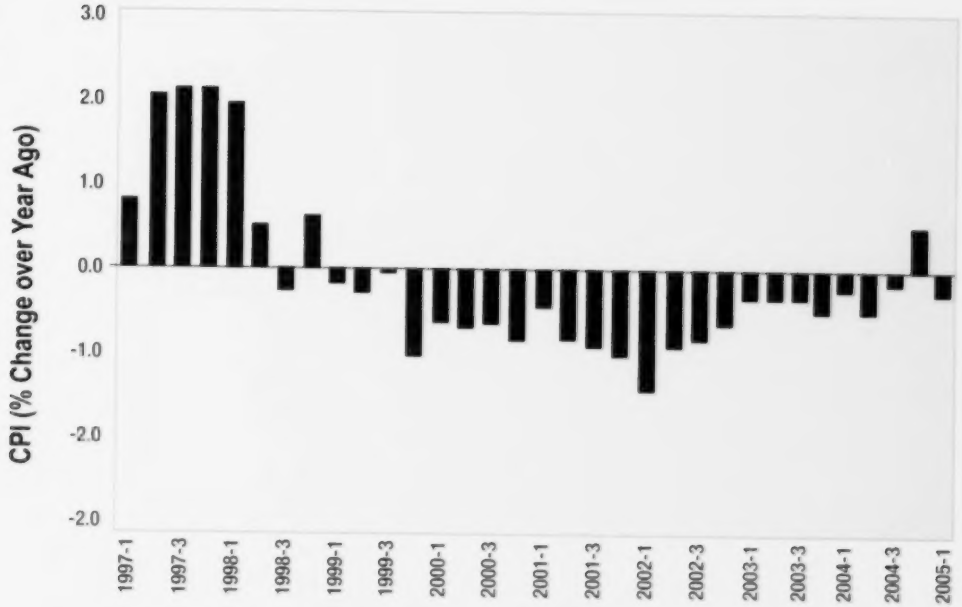
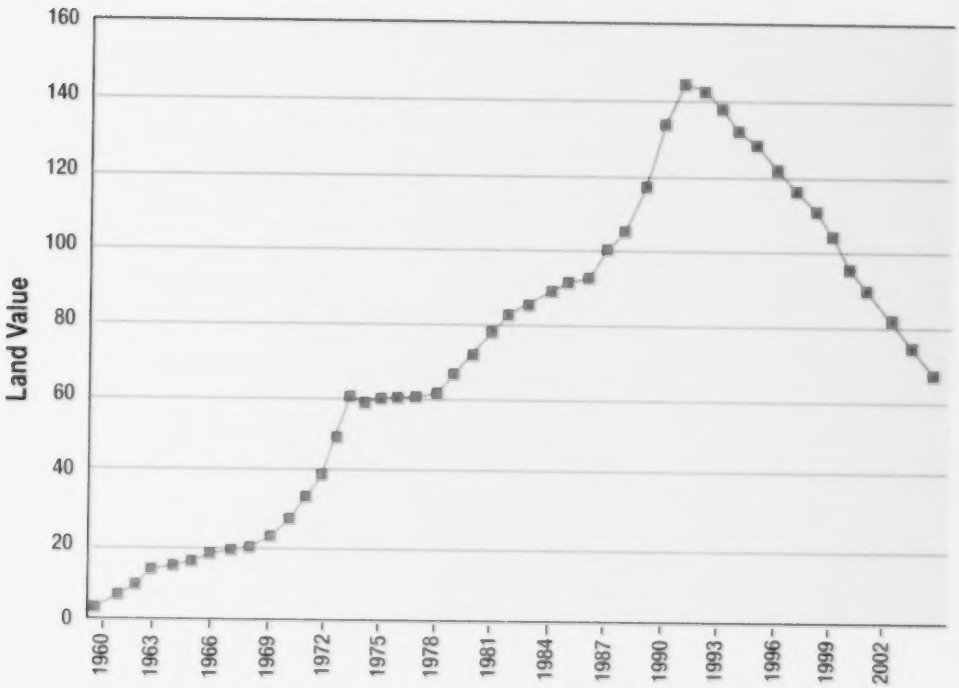


Figure 21
Japan Land Price Index



13 Emergence of "power builders"

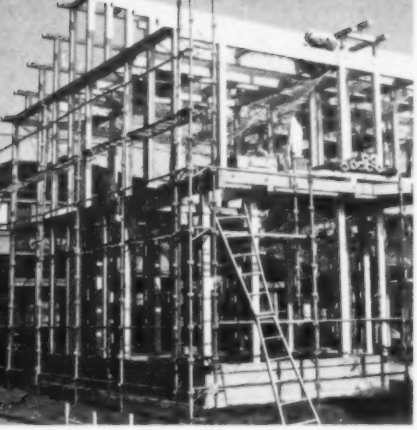
There is a growing trend towards small-scale subdivision development in Japan that is being led by a group of medium-sized homebuilders often referred to as "power builders". While there is no solid definition of power builders, they tend to be local (regional) subdivision sellers, and since the mid-1990s their market share has been expanding. They often purchase large parcels of land and build several detached houses. They do not develop bigger scale projects such as new town projects. These projects can be described as being located within a 10 to 20 minute walk from a commuter station, a 75 m^2 floor area two-storey house built on a 100 m^2 lot, with a selling price of approximately 35 million yen. Their target market is the second wave of baby boomers, often referred to as echo boomers, which are first-time home buyers, and looking for an alternative to buying an apartment. Power builders provide affordable houses for landless first-time purchasers by shortening the construction schedule, purchasing low-cost construction materials and implementing economies of scale.

While most power builders are currently operating in urban areas around Tokyo, it is expected that they will begin expanding their operations to other major urban areas of Japan. The top 10 power builders accounted for 5.3% of post & beam starts in Japan in 2004. While there was only one power builder operating in 1998, recent data shows that 8 of the top 15 homebuilders in the Tokyo area in 2004 were power builders. The

data also shows that while the large national homebuilders have seen their share of the residential construction market decline in recent years, power builders have been increasing their market share. Since power builders purchase building materials in larger quantities, this should provide opportunities for North American manufacturers of secondary wood products to sell in larger quantities.

PRODUCT OPPORTUNITIES

- Wood windows
- Engineered wood products
- Wood cabinets
- Exterior doors
- Wood moulding and millwork



Emerging trends

Other changes will be performance-related and may include increased longevity requirements (increase from 25-year life), reduced maintenance requirements, the strict enforcement of the 10-year warranty (HQAL, 2000) and the increased use of optional (and costly) 20- and 30-year maintenance contracts. In addition, there will likely be new performance-related regulations on major reform projects.

There will be an additional layer of regulations that will be energy-related and referenced to meet Kyoto targets, which the Japanese take very seriously. This could include regulations on level of insulation, efficiency of heating systems, alternative sustainable fuel use, etc. These could lead to conflicts with indoor health requirements and provide opportunities for engineered wood building components (e.g., wall systems inclusive of insulation and venting).

The continued growth in the supply of low quality, high cost timber in Japan will increase the use of regulation, subsidy and industry association pressure to expand the use of domestic species. This will likely occur at a local or prefecture level to avoid WTO challenges.

The need to house the elderly, combined with the need for the elderly to age in place, may lead to planned, built-for-sale senior housing along with suitable amenities. This would create opportunities for low maintenance, privately owned, row or town house complexes.

There will be a continuing increase in domestic recreation for the Japanese. This will create opportunities for wood recreational structures (particularly log structures).

Many of the houses built since 1980 will last much longer than the previous average of 25 to 30 years. The declining value of property, the increasing quality of housing and the growth in reform should contribute to the success of the government's initiative to develop a resale market for housing. This would contribute to increasing reform but a decline in new housing starts.

Emerging Trends

The government will increase its regulatory role in housing. Some changes will be related to demographics and the aging population:

- increased regulations regarding healthy indoor environment in terms of the impact of material off-gassing on air quality
- improved accessibility to facilitate active aging in place
- increasing warranty and guarantee requirements.

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